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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,235	12/30/2000	Alan Wong	042390P10057	8761

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EXAMINER

RHEE, JANE J

ART UNIT

PAPER NUMBER

1772

DATE MAILED: 07/16/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/751,235

Applicant(s)

WONG, ALAN

Examiner

Jane J Rhee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-12, drawn to apparatus, classified in class 216.
- II. Claims 13-20, drawn to method, classified in class 438.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by hand.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Bernadicou on March 11, 2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. Claims 6 and 9 recites the limitation "first pair of features" in claim 1. There is insufficient antecedent basis for this limitation in the claim. The word "features" is not mentioned in the first claim.
3. Claims 7 and 10 recites the limitation "second pair of features" in claim 1. There is insufficient antecedent basis for this limitation in the claim. The word "features" is not mentioned in the first claim.
4. Claims 8 and 11 recites the limitation "third pair of features" in claim 1. There is insufficient antecedent basis for this limitation in the claim. The word "features" is not mentioned in the first claim.
5. Claim 12 recites the limitation "first pair, second pair, and third pair of features" in claim 1. There is insufficient antecedent basis for this limitation in the claim. The word "features" is not mentioned in the first claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1-5 and 12 are rejected under 35 U.S.C. 102(e) as being unpatentable by Hijzen et al. (6368921).

Hijzen et al. discloses a structure comprising a first pair of overlay bars disposed in a substrate and left exposed (figure 9 number 51 and 10a), the first pair of overlay bars being equidistant from the first centerline; a second pair of overlay bars disposed in the substrate and left embedded below a layer of material (figure 9 number 17), the second pair of overlay bars being equidistant from a second centerline; and a third pair of overlay bars disposed in the layer of material (figure 9 number 17), the third pair of overlay bars being equidistant from a third centerline, wherein deviation among the first, second, and third centerlines is a measurement of overlay. Hijzen et al. discloses that the first separation between the first centerline and the third centerline is a post-etch overlay (figure 9). Hijzen et al. discloses that the second separation between the second centerline and the third centerline is a post develop overlay (figure 9). Hijzen et al. discloses that the third separation between the first centerline and the second centerline

is an exposed to embedded offset in overlay (figure 9). Hijzen et al. discloses that the exposed to embedded offset in overlay can correct a post develop overlay to predict a post etch overlay (figure 9). Hijzen et al. discloses that the first pair, the second pair, and the third pair of features are parallel (figure 9 number 51 and 17).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5 and 12 is rejected under 35 U.S.C. 102(b) as being unpatentable by Morikawa (5308682).

Morikawa discloses a structure comprising a first pair of overlay bars disposed in a substrate and left exposed (figure 4c number 39a), the first pair of overlay bars being equidistant from the first centerline; a second pair of overlay bars disposed in the substrate and left embedded below a layer of material (figure 4c number 37a and 37b), the second pair of overlay bars being equidistant from a second centerline; and a third pair of overlay bars disposed in the layer of material (figure 4c number 37c and 37d), the third pair of overlay bars being equidistant from a third centerline, wherein deviation among the first, second, and third centerlines is a measurement of overlay. Morikawa

discloses that the first separation between the first centerline and the third centerline is a post-etch overlay (figure 4c). Morikawa discloses that the second separation between the second centerline and the third centerline is a post develop overlay (figure 4c). Morikawa discloses that the third separation between the first centerline and the second centerline is an exposed to embedded offset in overlay (figure 4c). Morikawa discloses that the exposed to embedded offset in overlay can correct a post develop overlay to predict a post etch overlay (figure 4c). Morikawa discloses that the first pair, the second pair, and the third pair of features are parallel (figure 4c numbers 39 and 37a,b,c,d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hijzen et al. in view of Farrar (6413827).

Hijzen discloses that the first pair of features and the second pair of features comprises trenches (figure 9 number 17). Hijzen discloses that the third layer is transparent (figure 2 number 52). Hijzen fail to disclose that the trenches are filled with dielectric material. Hijzen fail to disclose that the second pair of features are trenches filled with dielectric material and covered with transparent material. Farrar teaches trenches filled with the dielectric material, silicon dioxide for the purpose of obtaining

improved values of capacitive coupling (col. 2 lines 48-50). Silicon dioxide is notoriously well known in the art to be a transparent material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided Hijzen with trenches filled with the dielectric material, silicon dioxide in order to obtain improved values of capacitive coupling (col. 2 lines 48-50).

8. Claims 9-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Morikawa in view of Bostrom (3731085).

Morikawa discloses the structure above. Morikawa fail to disclose that the first, second or third features comprise holes filled with opaque material. Bostrom discloses holes filled with opaque material for the purpose of forming a code to impart evidence of identification (col. 1 line 66).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided Morikawa with holes filled with opaque material in order to form a code to impart evidence of identification (col. 1 line 66) as taught by Bostrom.

9. Claims 1-3,6, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (figure 1 and 2 and pg 2-4).

Applicant's admitted prior art discloses a first pair of overlay bars disposed in a substrate and left exposed, the first pair of overlay bars being equidistant from a first centerline (figure 1 number 45 and 52), a second pair of overlay bars disposed in the substrate and left embedded below a layer of material, the second pair of overlay bars

being equidistant from a second centerline (figure 1 number 15, 14 and 40) wherein the overlay bars are trenches filled with dielectric material (pg 3 lines 18-19). Applicant's admitted prior art discloses that the first and second pairs are parallel (figure 1 numbers 15 and 45). Applicant's admitted prior art fails to disclose a third pair of overlay bars disposed in the layer of material, the third pair of overlay bars being equidistant from a third centerline.

However, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a third pair of overlay bars disposed in the layer of material in order to have provided a simpler overlay measurement system wherein one is able to measure the overlay after develop and after etch more consistently.


Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane J Rhee whose telephone number is 703-605-4959. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 703-308-4251. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-301-9999 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Jane Rhee
July 12, 2002


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

7/12/02